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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/632,789	08/04/2003	Franz Kraemling	3633-539	7444
22850	7590	08/08/2005	EXAMINER	
OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314			IVEY, ELIZABETH D	
			ART UNIT	PAPER NUMBER
			1775	
DATE MAILED: 08/08/2005				

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/632,789

Applicant(s)

KRAEMLING, FRANZ

Examiner

Elizabeth Ivey

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 June 2005.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 19-39 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 19-39 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☒ Certified copies of the priority documents have been received in Application No. 09/594,262.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 19-20, 24-27, 29, 32-33, and 36-38 are rejected under 35 U.S.C. 103(a) as being unpatentable U.S. Patent 5,932,329, to Frost et al in view of U.S. Patent 4,584,236 to Colmon et al.

Regarding claims 19, 20, 32 and 33, Frost discloses a transparent laminated glass glazing comprising two panes of glass having a polymer intercalating sheet with an antisun (IR reflecting) coating applied (column 1 lines 50-53) and suited for automobiles (column 1 lines 11-

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16). Frost discloses the antisen coating on the intercalating sheet as comprising one or more thin silver layers embedded between metallic and/or dielectric layers (column 2 lines 55-58). Frost fails to disclose a low emissivity transparent coating, but Colmon discloses a low emissivity transparent coating comprising oxides of various metals well known in the art such as Fe, Cr, Co, Ti, Al, Sn, Cu, or In (column 2 lines 33-35) and discloses in particular, fluorine doped tin oxide (column 4 line 22) on a glass substrate for use in applications including buildings or vehicles (column 2 line 65-column 3 line 2 and column 5 lines 12-17). Colmon discloses this coating provides lower energy loss and better physiological comfort to individuals on the interior of the passenger compartment whether the compartment comprises a vehicle or a building or other type of vessel (column 1 lines 45-50 and column 2 line 65 –column 3 line 2). Therefore it would have been obvious to a person having ordinary skill in the art at the time of the invention to combine the low emissivity coating of Colmon with the glazing of Frost to create a laminated glazing that would provide greater physical comfort to the individuals on the interior side of the glazing.

Regarding claims 24-26, 36 and 38, Frost discloses an intercalating sheet comprising an antisen (reflective) coating applied to a 50 μm thick sheet of PET polymer situated between two PVB layers (column 2 lines 33-34 and 49-65). It would have been obvious to a person having ordinary skill in the art at the time of the invention to adjust the PVB and antisen coating thicknesses for the intended application, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art.

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Regarding claim 27, Colmon discloses the location of the low emissivity coating as being on the interior side of the glass pane so as to minimize wear from accidental scratching, frictional wear from windshield wipers or weathering each of which may cause thinning of the coating and a subsequent iridescent appearance (column 2 line 65- column 3 line 16). It would therefore have been obvious to a person having ordinary skill in the art at the time of the invention to locate the low emissivity coating of Colmon on a face of glass not subject to wear including face 3 of the laminated glazing.

Regarding claims 29 and 37, Frost discloses 2 glass panes 3mm thick (column 2, lines 27-28). It would have been obvious to one having ordinary skill in the art at the time of the invention to adjust the glass thickness for the intended application, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art.

Claims 21, 23 and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 5,932,329 to Frost et al in view of U.S. Patent 4,584,236 to Colmon et al. as applied to claims 19 and 29 above, further in view of U.S. Patent 5,132,161 to Shibata et al.

Regarding claims 21 and 34, Colmon discloses a low emissive coating but does not disclose an undercoating or overcoating for protective or other purposes. Shibata discloses a heat reflective layer comprising at least 2 layers wherein an undercoating layer to improve close

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contact properties to glass or an overcoating protective layer for the purpose of increasing durability or both an undercoat and an overcoat may be formed on the heat reflective layer (column 3 line 65 – column 4 line 6). Since it is desirable to improve close contact properties between a glass layer and a heat reflecting layer for adhesion purposes and to protect a heat reflective layer from physical damage in a glass pane, it would have been obvious to a person having ordinary skill in the art at the time of the invention to incorporate the undercoating or overcoating of Shibata into the combined glazing of Frost and Colmon.

Regarding claim 23 Frost discloses an antisun (reflective) coating but does not disclose the application of the reflective coating to face 2 or 3 of the glass sheets of the glazing. Shibata discloses a laminated glazing suitable for automobiles comprising a heat ray reflecting layer (column 1 lines 36-53) formed on the inner surface (facing the inner glass pane) of the outer glass pane or the inner surface (facing the outer glass pane) of the inner glass pane (column 6 lines 15-32). It would have been obvious to one having ordinary skill in the art at the time of the invention to apply the antisun (reflective) coating of Frost to either face 2 or face 3 of the combined glazing of Frost and Colmon as disclosed in Shibata because this placement allows the coating to reflect infrared rays before encountering the interior of the compartment.

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Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 5,932,329 to Frost et al in view of U.S. Patent 4,584,236 to Colmon et al. as applied to claim 19, further in view of U.S. Patent 6,042,934 to Guiselin et al.

Regarding claim 22, Frost discloses that the antisen coating comprising one or more thin silver layers each functioning as functional layers between dielectric layers (column 2, lines 54-57) but does not disclose the relative thickness of the dielectric layers. Guiselin discloses the use of different thicknesses (asymmetry in thickness) in order to optimize both the glazing's ability to protect against solar heat rays and its visual appearance with regard to reflection. Because optimization of both solar heat ray protection and visual appearance with regard to reflection are desirable in automobile glass, it would have been obvious to one having ordinary skill in the art at the time of the invention to incorporate the use of dielectric layers of different thicknesses into the combined glazing of Frost and Colmon.

Claim 28 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 5,932,329 to Frost et al in view of U.S. Patent 4,584,236 to Colmon et al. as applied to claim 19 above, further in view of U.S. Patent 5,602,457 to Anderson et al.

Regarding claim 28, Frost discloses transparent PVB layers in the intercalating sheet but does not disclose tinting of any of the PVB layers. Anderson discloses that tinting of many windshields is done through tinting of a PVB layer (column 5 lines 6-8). Since a tinted glazing in general and in various degrees is desirable for auto glass as well as for architectural glass as

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disclosed by Colmon (column lines 1-17), it would have been obvious to one having ordinary skill in the art at the time of the invention to tint the inner PVB layer of Frost as disclosed by Anderson and combine it into the combined glazing of Frost and Colmon.

Claim 30 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 5,932,329 to Frost et al in view of U.S. Patent 4,584,236 to Colmon et al. as applied to claim 19, further in view of U.S. Patent 3,801,423 to Van Laethem et al. or alternatively in view of U.S. Patent 4,107,366 to Rieser et al. Frost discloses a laminated glass pane (abstract). Although Frost does not disclose the glazing to be toughened or rendered, Van Laethem discloses a multiple glazing panel that is toughened (column 2 lines 31-42) and rendered convex (figure 6) for use in an automobile. Van Laethem discloses the toughening as an improvement to breakage characteristics (column 1 line 25-27) and glazings used for windshields are rendered convex to fit the automobile body. Since it advantageous for automobiles to have glazings with improved breakage characteristics and formed to fit the automobile body, it would be obvious to one having ordinary skill in the art at the time of the invention to toughen or render convex the combined glazing of Frost and Colmon. Rieser discloses glass panes, which may be bent separately or together and tempered and discloses their known use in windshields (column 6 lines 10-25). It would therefore have been obvious to a person of ordinary skill in the art at the time of the invention to use convex and or tempered glass for the glazing of Frost and Colmon particularly if used as a windshield.

Claims 31 and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 5,932,329 to Frost et al in view of U.S. Patent 4,584,236 to Colmon as applied to claim 19 above, further in view of U.S. Patent 5,073,451 to Iida et al.

Regarding claim 31, Frost discloses an antisen coating comprising one or more thin silver layers embedded between metallic or dielectric layers (column 2 lines 56-58). Frost does not disclose the use of said coating as an antenna. Iida discloses a heat insulating glass plate with a multilayer dielectric film coating sufficiently high in reflectance for solar radiation and transmittance for the visible light and also in transmittance for radio waves including radio and television broadcast waves. Since it is desirable for an automobile glass pane to be high in transmittance for radio waves it would be obvious to one having ordinary skill in the art at the time of the invention to use the glazing of Frost as an antenna as disclosed in Iida.

Regarding Claim 35, Frost discloses an antisen coating comprising one or more thin silver layers embedded between metallic or dielectric layers (column 2 lines 56-58). Frost does not disclose the use of Si_3N_4 or AlN as the dielectric material. Iida discloses a heat insulating glass plate having a multilayer coating comprising a lamination of transparent and dielectric layers comprising SnO_x ($0 < x \leq 2$) TiO_x ($0 < x \leq 2$), TaO_x ($0 < x \leq 2.5$), ZrO_x ($0 < x \leq 2$), AlN_x ($0 < x \leq 1$), or SiN_x ($0 < x \leq 4/3$) interchangeably as all having high refractive index. Since these compounds are interchangeable for use as a dielectric in a window glazing and it is desirable to have interchangeable materials for the purpose of optimization, it would be obvious to one having

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ordinary skill in the art at the time of the invention to substitute one material for another and use AlN and Si₃N₄ as dielectrics as disclosed by Iida in the Frost glazing.

Claim 39 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 5,932,329 to Frost et al in view of U.S. Patent 4,584,236 to Colmon as applied to claim 19 above, further in view of U.S. Patent RE37,446 E to Miyazaki et al.

Regarding claim 39, Frost discloses an antisen coating (column 1 lines 50-53), but does not disclose the connection of the antisen coating to a power supply to heat the laminating glazing. Miyazaki discloses the use of layers of oxide and metal films alternately formed on a substrate is electrically conductive and can be equipped with electric heating components such as a bus bar and used to electrically heat a windshield in an automobile. Since it is advantageous to electrically heat an automobile windshield for defogging purposes it would be obvious to one having ordinary skill in the art at the time of the invention to apply the electrical connection and use of the coating disclosed in Miyazaki in the combined glazing of Frost and Colmon.

Response to Arguments

Applicant's arguments with respect to claim 19 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

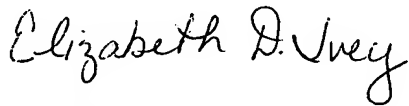
The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. U.S. Patent 4,973,511 to Farmer et al. discloses a laminated window construction with a solar control film formed on a plastic layer such as PET layer surrounded by PVB layers and situated between outer transparent glass panes. Farmer discloses the solar coating contain at least one reflecting metal layer and at least one adjacent adherent layer of a dielectric material. Farmer discloses 3 and 5 layer coatings comprising metal layers positioned between dielectric layers.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Elizabeth Ivey whose telephone number is (571) 272-8432. The examiner can normally be reached on 7:00- 4:30 M-Th and 7:00-3:30 alt. Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Deborah Jones can be reached on (571)272-1535. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Elizabeth D. Ivey


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